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Smoke while you say



### Round the Soviet Union

● IN THE BLACK SEA TOWN OF ODESSA, DESIGNERS HAVE STARTED WORKING ON A METRO. Three lines with an overall length of 55 kilometers are to be built. At present 20 Soviet cities have underground lines in operation, under construction or in the planning stage.

● THE THIRTIETH SANATORIUM FOR INDUSTRIAL WORKERS HAS BEEN OPENED IN THE BALTIC REPUBLIC OF LITHUANIA. It was built in Kaunas with money supplied by a radio plant. Accommodation at resorts in this country is available either free of charge, or at a considerable discount.

● MEMBERS OF A NEW SCIENTIFIC EXPEDITION AND THEIR EQUIPMENT HAVE BEEN TAKEN TO ANTARCTICA ON BOARD SEVERAL SOVIET SHIPS. Two groups of scientists and specialists had arrived there earlier in 1968. All in all, the 28th Soviet Antarctic expedition consists of nearly 1,200 people. The Soviet Union began its exploration of the sixth continent in 1938. At present, there are seven permanent Soviet stations there.

● WORK HAS FINISHED ON THE FIRST SECTION OF THE DORKY METRO. Passing under city streets with a very heavy traffic, the tunnels had to be dug at various depths. The Metro is about nine kilometers long. The first Volgograd Metro has to negotiate a relatively water-saturated sand and underground rivers.

● ARKHANGELSK WILL BECOME MORE BEAUTIFUL ONCE ITS GENERAL RECONSTRUCTION PLAN IS COMPLETED, PROVIDING FOR CONVENIENT RESIDENTIAL AREAS ON SOLOMBALIA ISLAND, the place where the Russian Navy was founded, as well as on the former marshes that surrounded the city. Arkhangelsk's first new projects will be finished next year when the city marks its 400th anniversary.

### FROM THE SOVIET PRESS

#### TRAINING IN MANAGEMENT NEEDED

Hundreds of enterprises are due for retooling in the next ten years, stresses Professor A. Proskuryakov, head of the department of the economy and organization of production in the Moscow Electronic Technology Institute writing in PRAVDA. In such conditions young experts are not given time to adaptation and could well lose their way in the maze of modern production from the very start. This is why our colleagues should train their students in management, Proskuryakov points out.

At our Institute, for instance, beginning from the eighth term, students spend half of their time on practicals in industry. They are challenged not only by technical questions but also by problems of an organizational and economic character.

It is by no means an easy thing to think up improvements in factory management. The young experts are helped by playing business games or modelling various solutions to a problem. This training also includes case-studies and conflict situations.

#### CACHES UNDERFOOT

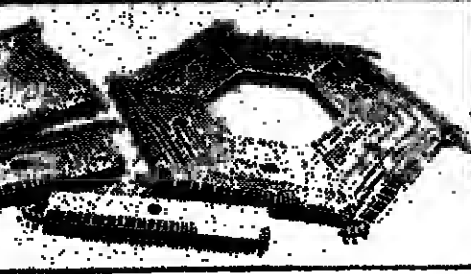
It is always worthwhile for geologists to prospect for new deposits in far-off places that are hard to reach. Might it not be more worth their while to look under their feet, as it were, asks the newspaper MOSKOVSKAYA PRAVDA. Recent research indicates that the economically developed regions settled long ago have promising mineral deposits.

## MOLDAVIA: LAND OF SONG



● Zhan Vitlitz (left) and Pyotr Popov, makers of musical instruments.

It is hard to think of Moldova, a republic in the south-west of the USSR, without the gripping melodies of the Moldavian folk singers ringing in one's ears. The people inhabiting this land of archaids



● A family of three made in the workshop.

and vineyards have long been famous for their love of music and singing.

The soul-pulling violin, the sonorous cymbals, the soft and lyrical kaval, the merry baglam, and exquisite cithers — each of these traditional Moldavian instruments expresses in its own way the soul of the Moldavian people. These instruments taken together make up a total — the name given to Moldova to a musical group. No festival can take place in a Moldavian village without a tarat.

Everyone in Kishinev, the capital of the republic, knows about the workshop run by Zhan Vitlitz, a man who has resurrected many of the instruments belonging to the tarat. Thousands of instruments have been made in the workshop which employs twenty people and which has been in operation for the past twenty years. Moscow and Leningrad musicians, as well as Moldavians, play these instruments, many of which have been given a new lease of life in Vitlitz's workshop.

Photos by L. Akulov

### ECOLOGY SERVICES AT THE PLANT

All pollution from the Akmyany cement amalgamation in the Lithuanian SSR (a Baltic republic) has been completely stopped. With the help of ultrasound devices, the cement is now collected into granules and recycled.

The new devices have completed the environmental protection complex at this republic's largest construction industry enterprise. The plant's water for industrial needs is taken from

old quarries and later purified mechanically and biologically in a closed-cycle system.

The experience of the engineers from Akmyany is borrowed by other factories in Lithuania. In the industrial centers, interplant water purification systems have been built and greenery belts plotted. This republic's plants and factories will double environmental protection allocations in the current five-year plan period.

### VINES ARE BORN IN THE NURSERIES

Commercial-type vines bearing the best grades of grapes are being grown at nurseries in Moldova, where nearly four thousand horticulturists have launched a grafting campaign. In one month they will carry out 140 million operations giving life to vine grafts.

The Viticultural research association grows seedlings of vine varieties that are

resistant to frost, disease and pests.

Special attention is given here to the production of early maturing vine seedlings, to building up the number of table vine seedlings and to the establishment of vineyards of Champagne-type grapes. This year, the area under vineyards in Moldova is to be expanded by 16 thousand hectares.

### Karakum Canal: valuable waterway

The first canyon of barges has set off from the Kakhka Jetty to the Karakum Canal. For the first time ships carrying building material will travel along a 70 km stretch of the canal to where it crosses the Tashkent River at the point where a water regulation dam is under construction. Today this artificial river, which stretches for 1,100 kilometers across desert land, is navigable for almost half of its length.

The Karakum Canal has become not only a reliable source of water for irrigation, but also a main waterway across the desert. It links dozens of buildings, settlements and up along its banks as well as village-lake farms.

The construction of the canal continues with its bed being expanded and deepened. Very soon, it will be navigable as far as Ashkhabad, capital of Turkmenia.

### TYUMEN OIL GOES TO KAZAKHSTAN

The 1,542 kilometre oil pipeline between Pavlodar and Chirchikent has been put in operation with the oil coming from the Tyumen Region of Western Siberia to the rapidly developing southern region of Kazakhstan.

The new line will speed up the development of the petrochemical complex which is being built and expanded in Kazakhstan. The oil from Tyumen means that the Chirchikent refinery and the associated petrochemical plant will be able to supply the fuel and tires requirements of road vehicles and agricultural machines in Kazakhstan and the Central Asian republics.

Previously, fuel and tires used to be brought from the Russian Federation thousands of kilometers away.

The new line, which is expected annually to replace more than a thousand fuel-carrying freight trains, will considerably improve the supplies of valuable raw materials to Kazakhstan's industries and agricultural complex.

### NEW MINERAL

#### FOUND IN SIBERIA

A new mineral, found in the Transbaikalian mountains, has been named toulonin in honour of Siberian geochemist, Academician L. Toulon.

It is a semitransparent colored stone with numerous facets reflecting the light. Its commission on new minerals of the International Mineralogical Association has confirmed its find in the Transbaikalian mountains and has entered it in its catalogues.

### Reduced-cost pipeline

A pipeline, the oil pump products from the oil refineries in Grozny to the Pribninsk works in the Stavropol steppe, will help relieve the heavy network in the south of the European part of the USSR. 183 km long, it will come into service late this year.

The pipeline, designed with due account being taken of future expansion of the works, will result in considerable economies being achieved. Its construction costs will pay off in the first five years of service.

This opportunity became clear from a new theory of ore-formation based on tectonic data from the Kola superdeep well which has now reached the early Baltic crystalline shield, more than 11,000 metres underground. In studying samples of the earth's crust Soviet scientists discovered that despite earlier theories not only the upper layers, but also the lower ones are rich in minerals, the article points out.

The new theory stresses that the early washed-out layers, which were believed to contain little or no minerals, have now been seen as treasure troves of various minerals in the areas of the Baltic, Ukrainian and other crystalline shields. Successful prospecting for copper, lead and zinc ores deep underground in the southern Ural and the Maritime Territory points to the large potential of this long-exploited ore-containing areas.

### FLYING TO MARS — REALITY OR ADVERTISING GIMMICK?

Many of the world's newspapers recently published reports about a manned flight to Mars to be undertaken by the United States. The reports are commented upon in MOSKOVSKAYA PRAVDA by Alexander Ivanchenkov, Pilot-Cosmonaut of the USSR, twice Hero of the Soviet Union.

Ivanchenkov considers that this project may quite well turn out to be an advertising gimmick, but that in long-term expeditions in space, American spacemen, spent a lot of 83 days in Skylab. At the time the dangers of not surviving the return flight had assumed an insoluble problem, Soviet space medicine

has shown that correct preparatory and preventive measures will enable man to stay in outer space for considerably longer periods. Anatoly Berezgovi and Valentin Lebedev, for instance, spent 211 days in space.

However, as the Soviet cosmonaut writes, it is difficult to say at this point whether one man or several people will be able to withstand a two-year-long stay away from their home planet. It is one thing knowing that in case of illness or equipment failure one can return to Earth within 24 hours, and quite another to realize that one will have to cope on one's own in even the most critical situation.

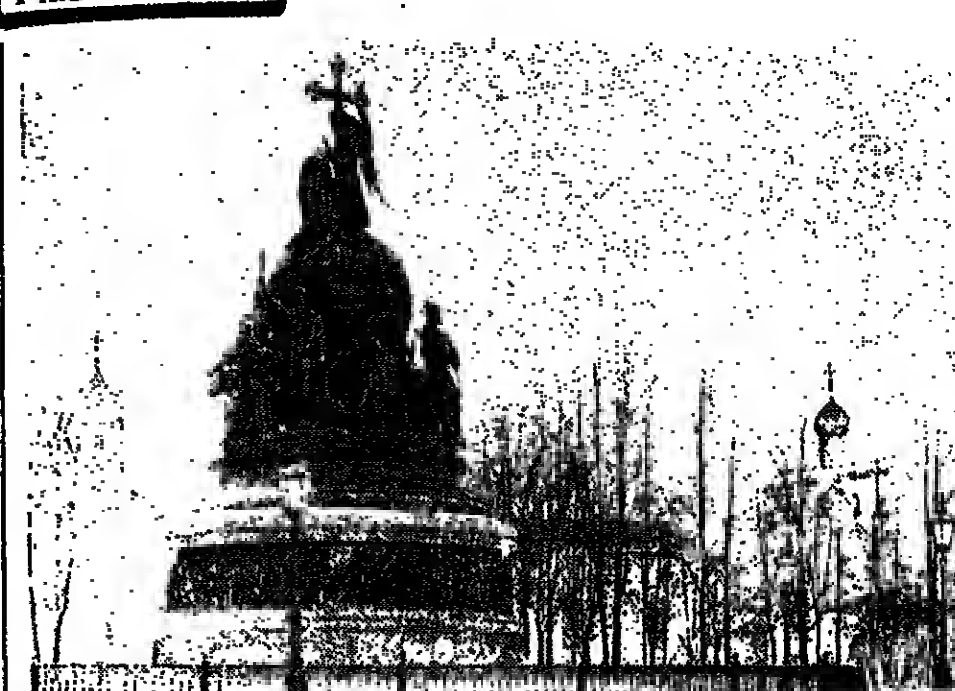
### STUDENT RESEARCH BUG SWEEPS COLLEGES

For a young engineer to adapt to working in a plant is a complicated and long process. Were it not for the glasses to take part in the work of student research bureaus this difficulty might be overcome, writes MOSKOVSKY KOSMOSOLYER.

The newspaper cites as an example the student research bureaus in Moscow which have outgrown their premises and have moved to the new premises of the Moscow Institute of Engineering and Technology. Under conditions of various enterprises, their students solve concrete economic problems. The structure of the research bureaus is similar to that of research institutes.

The student research bureaus provide students with all the engineering and managerial knowledge necessary for would-be engineers. For this reason, writes the newspaper, such bureaus will be appearing in all enterprises in this country very soon.

### Places to visit



## 'ONE THOUSAND YEARS OF RUSSIA' MONUMENT IN NOVGOROD

A monument called "One Thousand Years of Russia" was set up in the centre of the Novgorod Kremlin in 1982, marking the coming to power of Rurik who founded the Russian state.

The sketch of the young Academy of Arts graduate Mikhail Mikesin was chosen from among the fifty designs submitted and was adopted for execution. The idea of a monument to the founder of the Russian state was expressed by the monument's main sculpture — the Cap of Monomach. Six group sculptures above the base symbolize the decisive periods in our national history. They are Rurik (Mikesin was the first to attempt his likeness), Vladimir (who brought Christianity to Rus), Dmitry, Donskoi, Ivan III, Mikhail Fedorovich (founder of the Romanov dynasty) and Peter I.

For the lower section of the monument Mikesin made magnificent realistic high-relief portraits of those who immortalized their names in the field of education and military affairs, in science, in literature and art. The chronicler Nestor, the Kievan Prince Yaroslav the Wise, Alexander Nevski, Volok, the founder of the Russian theatre, the satirical writer Fonvizin, the historian Karamzin, the composer Glinka, the poets Derzhavin, Zhukovsky, Pushkin and Lermontov.

Christianity to Rus), Dmitry, Donskoi, Ivan III, Mikhail Fedorovich (founder of the Romanov dynasty) and Peter I.

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## Pierre CARDIN: FASHIONS HAVE NO FRONTIERS

Pierre Cardin, the world famous dress designer, was in Moscow recently to show his latest collection at the Franco-Soviet Chamber of Commerce.

Fashions have no frontiers, he said, addressing the journalists he had gathered to learn about his Moscow impressions. That is why I came here to introduce my Soviet colleagues to the new

trends adopted by our Fashion House.

Pierre Cardin original models are retailed to some five thousand shops for custom-made clothes all over France. In addition, the company is heavily involved in the mass production of clothing, perfume and knitwear. Pierre Cardin has been in charge for over 30 years.

The French fashion designer visited the USSR for the first time some 18 years ago. The aim of his latest visit was to tell his Soviet colleagues about what his company can offer and to study the outlook for joint ventures, including those on a consignment basis as well as a possible exchange of licenses.

Eva DANILOVA

## UN SCHOLARSHIP HOLDERS IN USSR

Soviet high performance diamond well-drilling forms the core of a retraining programme for a fresh batch of foreign engineers holding UN scholarships. Representatives of 13 Asian, African and European countries have just begun courses at Leningrad's Mining Institute.

Fundamental and applied re-

search at the Institute are well known abroad, too. For instance, so original a best drill developed by Soviet specialists to drill superdeep wells to Antarctica. The theoretical knowledge the trainees are to acquire will be supplemented by practical experience at mining enterprises in Central Asia.

### Latvian artistry in Moscow

The Exhibition of National Achievements of the USSR is now the venue of a series of shows of handicrafts from all the constituent republics. Recently it hosted the Day of Latvian Handicrafts featuring woodcarving, weaving, knitted articles and wickerwork.

In the photos: Evelina Jaga and also, master-weavers (left) Anna Pumpure from the town of Ilkaste displays her lacework. Tatjana displays her lacework. Tatjana displays her lacework. Tatjana displays her lacework. Tatjana displays her lacework.

Photos by Georgi Steinhilber

### Science and technology

#### A LUMINESCENT CONTROLLER

Luminescent materials invented by Kharkov scientists provide new opportunities for quality control in industry.

Checking the surface quality of parts is one of major problems in engineering. Minute cracks, cavities, and chips cannot be detected by the naked eye. Meanwhile, they may disable a whole joint in a machine. The Research Institute for Single Crystals offered to detect them with luminescent compounds — organic solutions capable of emitting light under ultraviolet radiation.

Surface flaws can be detected in this way, no matter how small the surface may seem. The method is universal in character, simple, and requires no costly equipment. It is effective for various materials, sizes, and configurations.

#### ROBOTS TAKE OVER IN MINES

A robot for operation in mines has been designed in the Soviet Union. The robot is built on a flexible programme enabling it to act according to the circumstances. The robot reacts, for example, to rock prospects. It changes the number of motor revolutions when hitting a hard rock.

The industrial tools of the mining robot are now nearing completion, after which commercial specimens will be manufactured.

It is also planned to design a robot for product control and stock taking, as well as for loading ore.

The field of robot application in the USSR is permanently widening. Robots are most extensively used in the metallurgical and mechanical engineering industries, transport, ore-mining and watchmaking factories. Robots assemble, weld, punch and paint products.

The five-year plan period provides for an increase in the number of robots in order to supply all branches of the economy with that equipment.

### VIEWPOINT

## USSR: large investments to improve housing

Eduard SARNATSKY, Vice-Chairman of the USSR State Committee for Civil Engineering and Architecture

In the current five-year plan period (1981-85) the Soviet Union is planning to spend 17,400 million roubles for repairs and reconstruction of its housing stock, nearly 2,000 million more than in the previous year. This money will go in renovating some 8,000,000 flats, and in building nearly 10,000,000 more, for which the state will allocate 13,000,000 roubles to help over 60,000,000 Soviet citizens build and renovate their housing, thus improving their living conditions.

The state is planning housing repairs and construction. After a definite period of use, specialists inspect every house and determine the need for repairs. Major renovation is normally done 23 to 30 years after a house has been built. During the renovation the inhabitants are rehoused in reserve housing and, if they wish, can get a comparable new flat for permanent residence on the same terms of payment (rent and utilities). The state looks after the bill for all the expenses incurred during major renovation.

Also, besides planned preventive renovation, much attention is given to modernizing old, but still suitable housing as well as for the preservation of architecturally valuable buildings. Such houses are renovated on the inside only (to line with current housing standards) while the facade remains intact or is restored, if need be.

In recent years housing repair specialists have been concentrating mainly on brick houses built in the pre-war years and to the early post-war period. A particularly new stage in housing repairs has been launched recently — houses built comparatively recently, to 1958-65, i.e. during the period when pre-war housing was being phased out, will be renovated. That period saw a most acute shortage of housing nationwide due to the destruction wrought by World War II when tens of millions of people had to live in communal flats.

To deal more quickly with the housing problem, but more economical simply designed five-story houses with small flats were built.

Three generations of housing have been built since. Today's flats are far superior to those built in the 30s and 60s in regard to their layout, finishing work and amenities. Besides, small apartment houses are now uneconomical, due to the sharp rise in the value of urban land. Still they were built to last a hundred years, and specialists are therefore planning to either tear down or modernize a portion of those apartment houses in areas where the land is most valuable.

A special modernization programme is now being drawn up along with methods for repairing and modernizing two-story multi-story houses. The emphasis is on industrial methods to speed up the programme and make it cheaper.



ANN INFORMATION No. 22, 1983